

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claim 1 (Cancelled).

2(Currently amended). A single-layer protein system according to claim ~~4~~ 5, wherein the molecule (iii) is labeled with high affinity ligand II.

3(Original). A multilayer protein system comprising two or more layers according to claim 2.

4(Original). A multilayer protein system according to claim 3 wherein in the last layer molecule (iii) is not labeled with high affinity ligand II.

5(Currently amended). A single-layer ~~or multilayer~~ protein system, ~~according to claim 3, wherein the protein (i) is~~ comprising:

(i) a protein being an avidin-type molecule selected from the group comprising native egg-white avidin, recombinant avidin, deglycosylated avidins, bacterial streptavidin, recombinant streptavidin, truncated streptavidin and other derivatives of said avidin-type molecules;

(ii) two ligands I and II which bind with different affinities at the same binding site of said protein, wherein said  
~~the low affinity~~ ligand I is 4'-hydroxyazobenzene-2-carboxylic

acid (HABA) or a HABA derivative, ~~the high affinity~~ which is the  
low affinity ligand, and said ligand II is biotin, which is the  
high affinity ligand; and ~~the molecule~~

(iii) a molecule that recognizes the low affinity  
ligand I, wherein said molecule is an anti-HABA antibody or a  
biotinylated anti-HABA antibody,

wherein in said single-layer protein system the high  
affinity ligand II is buried within the binding site of the  
protein (i) and the low affinity ligand I is covalently bound to  
the protein and associated with the molecule (iii) that  
recognizes it.

Claim 6 (Cancelled).

7(Currently amended). A ~~single-layer or~~ multilayer  
protein system according to claim 3, formed on a substrate  
selected from the group consisting of gold, silicium,  
polystyrene.

8(Original). A multilayer protein system according to  
claim 3 comprising 5-6 layers.

9(Currently amended). A method for assembling a  
multilayer protein system according to claim 3, which comprises  
the steps of:

(a) covalently binding said low affinity ligand I to  
said protein (i), thus obtaining a low affinity ligand I-protein  
(i) ~~complex~~ complex in which said ligand I is buried within the

binding site of said protein (i) and is thus not available for interaction with other molecules that recognize it;

(b) reacting the high affinity ligand II or a compound containing said high affinity ligand II with the low affinity ligand I-protein (i) complex of step (a) above, whereby low affinity ligand I is expelled from within the binding site to the periphery but remains covalently bound to protein (i) and high affinity ligand II is associated to, and buried within, the binding site of protein (i);

(c) reacting the low affinity ligand I-protein(i)-high affinity ligand II complex of step (b) with ~~a~~ said molecule (iii) that recognizes and binds to low affinity ligand I and is labeled with high affinity ligand II; and

(d) reacting the protein system of step (c) with low affinity ligand I- protein (i) complex as in step (b) above, and repeating steps (c) and (d) as desired.

Claims 10 and 11 (Cancelled).

12(Currently amended). A single-layer ~~or multilayer~~ protein system according to claim ~~4~~ 5, formed on a substrate selected from the group consisting of gold, silicium, polystyrene.

13(Currently amended). A method for assembling a single-layer protein system according to claim ~~4~~ 5, which comprises the steps of:

(a) covalently binding said low affinity ligand I to said protein (i), thus obtaining a low affinity ligand I-protein (i) complex in which said ligand I is buried within the binding site of said protein (i) and is thus not available for interaction with other molecules that recognize it;

(b) reacting the high affinity ligand II or a compound containing said high affinity ligand II with the low affinity ligand I-protein (i) complex of step (a) above, whereby low affinity ligand I is expelled from within the binding site to the periphery but remains covalently bound to protein (i) and high affinity ligand II is associated to, and buried within, the binding site of protein (i); and

(c) reacting the low affinity ligand I-protein(i)-high affinity ligand II complex of step (b) with a molecule (iii) that recognizes and binds to low affinity ligand I ~~and is labeled with high affinity ligand II, and~~

~~(d) reacting the protein system of step (c) with low affinity ligand I-protein (i) complex as in step (b) above, and repeating steps (c) and (d) as desired.~~